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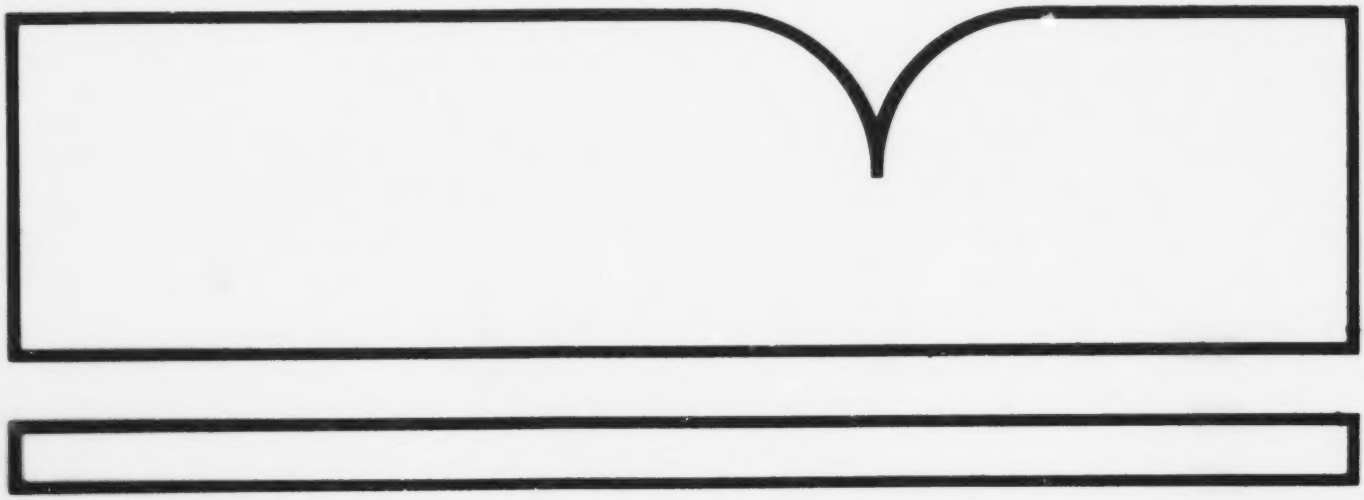
Final Environmental Impact Statement Municipality of Anchorage Sewerage Facilities Expansion (Addendum)

Jones and Stokes Associates, Inc.
Sacramento, CA

Prepared for

Environmental Protection Agency, Seattle, WA

Jun 83



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Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

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June 1983

Water

EPA/10/Anchorage AK WWTW 82

EPA

Environmental Impact Statement

Final

City of Anchorage, Alaska Wastewater Facilities

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The proposed action is the expansion of the Point Woronzof Wastewater Treatment Plant from 34 to 58 MGD, extension of the outfall, adding an outfall diffuser, solids disposal, construction of two major interceptor sewers, and designation of rural Hillside areas for on-site sewerage or public sewer services. The EIS discusses the impacts of these proposed actions and alternatives with emphasis on wetland impacts, Hillside area issues, effluent disposal issues, and secondary impacts. Specific mitigation measures in the form of proposed grant conditions are considered.

Six comment letters were received. Consideration of these comment letters in preparing the Final EIS required only minor changes to the Draft EIS. The changes to the Draft EIS, the comment letters and responses to the letters are contained in this addendum. This addendum and the Draft EIS constitute the Final EIS.

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ADDENDUM/FINAL
ENVIRONMENTAL IMPACT STATEMENT

MUNICIPALITY OF ANCHORAGE
SEWERAGE FACILITIES EXPANSION
EPA-10-ANCHORAGE AK WWTW-82

Prepared by:

U.S. Environmental Protection Agency
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1200 Sixth Avenue
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Clark Smith, Project Officer

With Technical Assistance from:

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2321 P Street
Sacramento, California 95816

Responsible Official:

L. Edwin Coate
Acting Regional Administrator
Environmental Protection Agency
Region 10

Date

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 443

TO: All Interested Government Agencies, Public Groups and Citizens

Enclosed for your review and comment is the Final Environmental Impact Statement (EIS) on the proposed Municipality of Anchorage Wastewater Treatment Plant Expansion and Interceptor facilities. The Municipality has an Environmental Protection Agency (EPA) grant for planning the proposed facility which includes treatment plant expansion and interceptors, under Section 201 of the Clean Water Act. EPA has prepared this Final Environmental Impact Statement on its proposed approval of this action, pursuant to Part 1503.4(c) of the Council on Environmental Quality Regulations for Implementation of Procedural Provisions of the National Environmental Policy Act (NEPA) of 1969.

EPA will announce the availability of this document in the Federal Register on Friday, May 27, 1983, which will begin a 30-day review period. If you have any comments on the Final Environmental Impact Statement, we would appreciate hearing from you before the close of the comment period on June 27, 1983. All comments will be used by the Environmental Protection Agency in evaluating the effects of approving the proposed action.

Please send your comments to: Clark Smith
Environmental Evaluation Branch
Environmental Protection Agency
1200 Sixth Avenue, M/S 443
Seattle, Washington 98101

ADDENDUM/FINAL
ENVIRONMENTAL IMPACT REPORT

MUNICIPALITY OF ANCHORAGE
SEWERAGE FACILITIES EXPANSION

Prepared by:

U. S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101
Clark Smith, Project Officer

With Technical Assistance from:

Jones & Stokes Associates, Inc.
2321 P Street
Sacramento, CA 95816

June 1983

Responsible Official:

_____

L. Edwin Coate
Acting Regional Administrator
Environmental Protection Agency
Region 10

(c)

COVER SHEET
ADDENDUM/FINAL IMPACT STATEMENT
EPA-910/9-82-091

a) Lead Agency: Environmental Protection Agency.

b) Proposed Action: Expansion of Municipality of Anchorage Wastewater Facilities.

c) For further information contact:

Mr. Clark Smith, Project Officer
U. S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, M/S 443
Seattle, Washington 98101

To request copies of the Addendum/Final EIS contact Mr. Clark Smith at the address noted above.

d) Designation: Addendum/Final EIS.

e) Abstract: A Draft EIS for expansion of Municipality of Anchorage wastewater facilities was prepared and made available for public review in January 1983. Six comment letters were received. Consideration of these comment letters in preparing the Final EIS required only minor changes to the Draft EIS. The changes to the Draft EIS, the comment letters, and responses to the letters are contained in this addendum. This addendum and the Draft EIS constitute the Final EIS.

The proposed action is the expansion of the Point Woronzof Wastewater Treatment Plant from 34 to 58 MGD, extension of the outfall, adding an outfall diffuser, solids disposal, construction of two major interceptor sewers, and designation of rural Hillside areas for on-site sewerage or public sewer services. The EIS discusses the impacts of these proposed actions and alternatives with emphasis on wetland impacts, Hillside area issues, effluent disposal issues, and secondary impacts. Specific mitigation measures in the form of proposed grant conditions are considered.

EXECUTIVE SUMMARY
ADDENDUM/ENVIRONMENTAL IMPACT STATEMENT

Draft ( )
Final (X)

Prepared by: U. S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

Type of Action: Administrative

Project Description

This Final Environmental Impact Statement (FEIS) is prepared by the U. S. Environmental Protection Agency (EPA) to evaluate the impacts of expanding the Municipality of Anchorage (MOA) wastewater collection, treatment and disposal system. This Addendum and the Draft Environmental Impact Statement (DEIS) constitute the FEIS.

The FEIS specifically evaluates the MOA facilities plan that proposes expansion of the sewerage system. That facilities plan consists of two related documents. The first is entitled Wastewater Facilities Plan for Anchorage, Alaska dated June 1982. This report was prepared for the MOA by a joint venture of Ott Water Engineers, Inc., Quadra Engineering, Inc., and Black and Veatch Consulting Engineers, and it comprises the majority of the MOA Section 201 facilities plan. The remainder of the Section 201 facilities plan is the Hillside Wastewater Management Plan developed by the MOA Planning Department, with contract assistance from Arctic Environmental Engineers and adopted by MOA in May 1982.

The Hillside Wastewater Management Plan, funded under Section 208 of the Clean Water Act, was prepared to address sewerage needs of the Hillside area of the Anchorage Bowl with an emphasis on continuing on-site sewage disposal and preserving a rural lifestyle in the study area. The plan identifies areas of the Hillside that are to be served by on-site treatment and disposal systems (such as septic tanks with drain fields), areas to be served by sewers, and areas unsuitable for on-site systems where no sewer systems are to be provided (although on-site systems may be allowed).

The Wastewater Facilities Plan for Anchorage, Alaska (MOA 1982) recognizes the determinations for these Hillside areas and proposes sewage collection, treatment and disposal systems serving the areas designated for sewerage in the Hillside plan. It also encompasses alternatives for expansion of sewage collection, treatment and disposal facilities for the rest of the Anchorage Bowl, outlined as follows:

- Alternatives for expansion of Point Woronzof wastewater treatment plant (WWTP) from a current design capacity of 34 MGD to 58 MGD.
- Extension of the existing outfall by 1,500 feet.
- Adding a diffuser of undetermined length at the end of the extended outfall.
- Alternatives for disposal of sludge solids from the treatment process.
- Alternatives for construction of the West Bypass Interceptor sewer.
- Construction of the Southeast Interceptor sewer, including sewerage alternatives in the Rabbit Creek-Potter Creek area.
- Provisions for on-site sewerage of a portion of the Hillside area.
- Construction of about 70 sewer improvement projects through 1998.

The facilities plan also sets forth a MOA-Recommended Plan, suggesting implementation of specific alternatives.

For EIS purposes the above project alternatives, except for the 70 sewer improvement projects, are evaluated in detail in the EIS. The 70 sewer improvement projects are addressed only with specific reference to wetland impacts and in general terms relative to cumulative impacts.

Recommended Plan

The Point Woronzof WWTP would be expanded from its current effective capacity of 22 MGD to 58 MGD (average annual flow). Current design capacity is 34 MGD, although the plant cannot meet discharge requirements at a design flow rate over 22 MGD. This expansion would be achieved through construction of three additional primary clarifiers, modification

of other portions of the liquid processing to increase capacity, addition of another sludge incinerator to the solids process, and consideration of alternative disposal methods for incinerator ash. The facilities plan indicates a preference for discharging the ash into the Knik Arm of Cook Inlet through the outfall along with the effluent, although discharge to a landfill or to lagoons or a gravel pit in the area of Point Woronzof is also considered.

The facilities plan recommends that the outfall be extended by 1,500 feet, that an extensive design effort be undertaken, and that the diffuser requirements be further studied. Preliminary diffuser modeling prepared for a Section 301(h) waiver application determined that a 1,000-foot diffuser would enable the discharge of chlorinated effluent to meet all existing water quality standards.

A diffuser study is underway to evaluate outfall and diffuser requirements under the assumption that chlorination would be discontinued. Preliminary results indicate that a theoretical diffuser length of tens of miles would be needed to meet coliform standards applicable to Cook Inlet if chlorination is discontinued. All other standards, however, apparently could be met with a minimal (100-foot) diffuser.

The study also is evaluating the diffuser requirements under assumptions that certain state-designated beneficial uses of the waters of Cook Inlet would be deleted. This change would allow less strict Alaska state water quality standards to apply. If fecal coliform standards of 200 FC/100 ml were to apply (compared to current standards of 14 FC/100 ml), a diffuser length of 6,100 feet would enable the discharge to meet this standard. If designated uses were further relaxed to eliminate all coliform standards a minimal length (100-foot) diffuser would be adequate.

A major interceptor sewer, the West Bypass Interceptor, is proposed to connect existing interceptor sewers at the Alaska Railroad crossing over Campbell Creek to an existing downstream section of the West Bypass Interceptor sewer near the Minnesota Bypass-Raspberry Road intersection. The proposed completion of the interceptor between these points would bypass a deteriorated, undersized corrugated metal pipe sewer paralleling Campbell Creek and an occasionally overloaded pumping station at Campbell Creek.

The existing Southeast Interceptor is proposed to be extended south to provide service to areas of the Hillside that are designated for public sewerage in the Hillside plan, including the south Hillside areas near Potter Creek and Rabbit Creek.

The Hillside Wastewater Management Plan (MOA 1982) evaluated the suitability of the Hillside area of Anchorage to accommodate on-site disposal systems, and delineated areas for public sewers, unsewered areas for on-site systems and unsewered areas generally unsuitable for on-site disposal systems. It sets forth planning and design criteria, construction guidelines and operation and maintenance requirements for on-site systems.

The Hillside plan does not preclude on-site systems in generally unsuitable areas; rather it applies additional restrictions, including soil tests for each lot in a subdivision, requiring innovative systems unless conventional systems are shown to be acceptable, and requiring more detailed system reviews by MOA.

The existing Anchorage Bowl system of collector sewers is in need of expansion, replacement and renovation in certain areas. Additional capacity is required in some instances, as well as replacement of several miles of corrugated pipe. About 70 sewer construction, rehabilitation and replacement projects are recommended in the facilities plan.

Alternatives

The DEIS evaluates alternatives to the Recommended Plan, including no action. The Executive Summary in the DEIS summarizes those evaluations.

Environmental Impacts

The DEIS evaluates environmental impacts on cost, wetlands, the Hillside area, and cultural resources; secondary impacts on services and utilities, natural resources, and socioeconomic values; treatment and disposal impacts; sludge processing and disposal impacts; and construction impacts.

Proposed EPA Action

EPA proposes to provide federal grant funding, subject to available funds and appropriate application by the MOA, for the following project elements:

- Expansion of the Point Woronzof WWTP to 58 MGD.
- Extension of the existing outfall by 1,500 feet.
- Addition of a diffuser when the appropriate length is determined.

- Construction of the West Bypass Interceptor sewer by tunnel construction.

EPA proposes to impose grant conditions on the MOA requiring monitoring of surface water quality and groundwater quality in the Hillside area as mitigation measures.

Conclusions

The distribution list for the DEIS and this FEIS is included at the end of the report. Availability of the FEIS should be announced in the Federal Register in May 1983. Comments are invited, and should be directed to:

Mr. Clark Smith, Project Officer
U. S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, M/S 443
Seattle, Washington 98101

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Chapter 1

INTRODUCTION

This addendum to the Draft Environmental Impact Statement (DEIS) for the Municipality of Anchorage wastewater facilities contains the public comments received on the draft statement, responses to the issues raised and changes or corrections to the draft statement. Since textual changes to the DEIS are minor, changes have been noted on errata sheets contained in this document. This is consistent with part 1503.4(c) of the Council on Environmental Quality Regulations for Implementation of the Procedural Provisions of the National Environmental Policy Act (NEPA). This document, combined with the DEIS, represents the Final EIS, and has been filed with the Council on Environmental Quality.

No comments raised issues that warranted the modification of alternatives evaluated, the addition of new alternatives, or additional environmental analyses.

Some comments raised issues which were beyond the scope of the DEIS or requested information already addressed in the draft statement. In these cases, the commentor was referred to the appropriate section(s) of the DEIS for this information. Brief statements were also made which specifically responded to the comment. In a few cases, comments were raised which required changes to be noted to correct textual errors, add new information, or to clarify text. In these cases, the response notes that changes are reflected in the errata sheets. The preparers of the statement also noted some minor textual errors which are also reflected by changes on the errata sheets.

Chapter 2

COMMENT LETTERS AND RESPONSES

This section contains reproductions of the comment letters received and provides responses to the issues raised. These letters are listed below:

1. Homeowners and Landowners Organization, Inc. (HALO);
2. Alaska Department of Fish and Game (ADFG);
3. Katherine M. Reed;
4. R. Brock Shamberg, P. C., Attorneys at Law;
5. Rabbit Creek Community Council;
6. U. S. Fish and Wildlife Service.

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Area-G
Homeowners
And
Landowners
Organization, Inc.

P.O. Box 10-2022
Anchorage, AK 99511

MAR 9 1983

EVALUATION

Mr. Clark Smith
Project Officer
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

Subject: Draft E19 - City of Anchorage, Alaska; Wastewater Facilities, December 2, 1982.

Dear Mr. Smith:

The following comments are supplemental to the testimony given by HALO and others during the previous public hearings for both the EIS and the Hillside Waste Water Study. HALO is an organization of Hillside home and land owners among whose purposes are to inquire into matters of community importance and to defend the communities unique heritage of a largely natural pure and healthful environment. Our comments are limited to the impacts on the Hillside of the Southeast Interceptor.

1 | In our opinion the draft EIS does not meet the full disclosure provisions mandated by the regulations of the Council on Environmental Quality. We are
2 | particularly concerned that long term and cumulative adverse impacts of the proposed Southeast Interceptor Extension are not adequately described. In our
3 | opinion several of the assumptions on which the EIS is based are non-factual, and cannot be supported. We believe the deficiencies are of such magnitude
4 | the impact statement sections pertaining to the South Interceptor Extension should be revised and another opportunity for public review provided.

Specific comments follow:

5 | 1. The objectives of the facilities plan as provided on page 3 are not sufficient. Page xii of the Executive Summary discusses the limited supply of water on the hillside and acknowledges this may either be a limit on development or a requirement that a public water be provided from an external source. The objectives of page 3 investigate the ability of the proposed wastewater collection systems ability to meet anticipated loads without consideration of the limitation on these loads

5 imposed by water availability. If the EIS is to be realistic it should address the capacity, cost and impacts of sewers as limited by present water availability. If the EIS is to address sewers to accommodate the postulated population density they should include the costs and environmental impact of the necessary public water system in the EIS. To not do so is misleading the public.

6 2. The safe Drinking Water Act described on page 9 is not being complied with. The dense developments projected for the lower hillside can not be served by ground water. Approved new subdivisions (South Addition No. 4) are obtaining surface water through infiltration galleries from Little Rabbit Creek. High nitrate levels have been observed in this stream (page 139) and higher levels may be expected. The EIS does not accommodate the health hazards imposed by the dense development. The EIS does not recognize the cost nor environmental impact of works or political restraints necessary to control nitrates in surface waters used for domestic water supply.

7 3. The population projections given in table 1-1 for the year 2000, on which the wastewater treatment needs are based, are about 25 to 30 percent high as compared to more recent projections.

8 4. The description of fish species utilizing Rabbit Creek given on page 121 should include King Salmon.

9 5. The section on page 132 and 133, Impacts on Potter Marsh fails to discuss impacts resulting from breaks and repair of the proposed interceptor. The section should also identify impacts resulting from failure of lift stations during power outages and the expected frequency of these outages. The discussion of impacts should also include a discussion of the impacts from cleanup of raw wastewater in Potter Marsh. This section is also deficient in discussion of cumulative impacts of proposed works.

10 6. The discussion of water availability, impacts of the proposed wastewater system, and dense population postulated does not in our opinion meet the full disclosure requirements of the NEPA. The impact statement should discuss fully the necessary works to provide domestic water and their costs and impacts. We are particularly concerned the analysis should consider impacts on areas outside of the immediate area served by sewers.

11 7. The statement on page 156, "areas south of Little Rabbit Creek cannot develop until the South East Interceptor is extended..." is false and misleading. The area can and is being developed under existing laws, regulations and zoning. The only constraint is its inability to support the population density desired by developers. Other similar misleading statements exist.

12 8. Table 7-1 is misleading in that much of the Hillside land described as available is not developable because of problems such as ground water, slope instability and wind loading.

13 9. The EIS has not adequately considered the effects of seismic events on the South East Interceptor. The analysis should include the effects of slope instability under seismic excitation.

We in HALO are willing to consult with you towards resolving the deficient portions of your document.

Respectfully Yours,

Giles N. McDonald

Giles N. McDonald
President HALO

Response to Comments by Homeowners and Landowners Organization, Inc. (HALO)

1. HALO comments that the DEIS does not meet the full disclosure provisions of the regulations promulgated by the federal Council on Environmental Quality. Throughout the EIS process EPA has pursued full disclosure of all impacts, and has provided numerous opportunities for public input to facilitate that disclosure. The responses to the specific comments of HALO and other commentors is another step in that disclosure process.

2. The DEIS addresses long-term and cumulative impacts of the southeast interceptor in Chapters 4, 5, and 7. Additional information is contained in the responses to comments in this FEIS.

3. HALO suggests the DEIS relied on nonfactual assumptions. The DEIS relied on facts available to EPA through local, state, and federal agencies, relevant literature, public input, and field review. We have responded to each concern of HALO, relying on the best information available to us.

4. Further public review is afforded through issuance of this FEIS. A 30-day public review period begins on the date that the official Federal Register notice is published announcing availability of this FEIS.

5. The objectives of the Facilities Plan are set forth in that plan, and are summarized on Page 3 of the EIS. The objectives of the Facilities Plan are adequate and acceptable to EPA under the Clean Water Act and regulations adopted by EPA pursuant to the Act. While grant funding may be provided by EPA for sewerage facilities, the Clean Water Act provides no authority for the planning of public water supply systems. The DEIS recognizes the relationship between water supply and sewage generation (page 160, paragraph 4, specifically, and pages 159 and 160, more generally). The DEIS also recognizes (pages 209 and 210) that the water scarcity problem is not resolved in the EIS and is, in fact, beyond the scope of the EIS to resolve. Planning efforts outside the scope of 201 planning will be required to resolve the water problem. The EIS assumes that the water shortage will be resolved. Current water supply augmentation efforts of the MOA (DEIS, page 160) reinforce this view. It should be recognized, however, that if supplemental water supply sources are not developed, growth may be constrained, and wastewater volumes may not be as large as expected. It is also possible that additional growth pressure may be felt in the Hillside area and other areas where public water supplies are not currently prerequisites for development.

It is not within the scope of the EIS or the Facilities Plan to estimate the maximum quantity of sewage that could be generated by the area's current limited water supply. Similarly, it is not in the scope of either document to identify or evaluate the sewerage facilities that would be required to collect, treat, and dispose of such limited sewage quantities.

6. The Safe Drinking Water Act, which became law on December 16, 1974, was enacted to assure that the public is provided with safe drinking water. It applies to all community water supplies, both government- and investor-owned, that have 15 or more service connections, or that serve 25 or more individuals. The Act does not apply to the individual wells that serve one or two homes in the Hillside area. It does apply to individual wells that serve schools and restaurants, as well as to community water systems meeting the above criteria.

   In general, the law calls for the federal government, through EPA, to establish standards for drinking water quality, and for the state governments to enforce the federal or more stringent state standards. The State of Alaska has assumed responsibility for enforcement of the federal standards and certain more stringent state standards. The state standards include bacteriological standards, violations of which may occur in Little Rabbit Creek, as well as other area streams. State statutes also charge the Alaska Department of Environmental Conservation (ADEC) with the conservation and protection of water resources.

   Nitrate is the primary inorganic constituent of concern in the Hillside area, due to the potential for elevated nitrate levels from septic system discharges. Monitoring of surface water in Little Rabbit Creek (USGS 1975, 1982) has detected no violations of the EPA-established maximum contaminant level of 10 mg/l nitrate as N. The highest level detected in the USGS sampling was 4.6 mg/l in 1967. Sampling in 1979 and 1980 showed nitrate levels of less than 1 mg/l. Page 139 of the DEIS does not refer to high nitrate levels in any local streams.

   However, as cited on page 140 of the DEIS, nitrate levels near to EPA standards have been detected in some individual wells. The Hillside Plan element of the Facilities Plan may not adequately protect groundwater quality in the Hillside area, where groundwater is the major source of drinking water, because large areas of the Hillside area remain designated for on-site sewerage systems. Studies of groundwater resources in the Hillside area demonstrate that drinking water quality standards already are threatened by on-site disposal systems, and would be increasingly jeopardized by projected population growth in the area if on-site disposal remains as the major wastewater treatment system. Threats to surface water from on-site system discharges may also increase.

The DEIS recognizes these potential threats to public health. EPA will impose grant conditions on the MOA to require regular monitoring of groundwater and surface water.

The EIS does address the health hazards imposed by development pursuant to the Hillside Wastewater Management Plan, primarily in Chapter 5. It is beyond the EIS scope to develop cost estimates for implementation of adequate methods that would prevent nitrate contamination of water supply sources. The DEIS recognizes the potential for contamination to occur and suggests steps that can be taken to prevent public health threats from developing. The cost and impact of prevention will increase with time, and the cost and impacts of remedies after contamination has occurred may be substantial. The MOA can estimate the costs of incorporating additional preventive measures in their Hillside area management program, since implementation is a local responsibility. However, estimation of costs and impacts of actions that are not part of the Facilities Plan are beyond the scope of this EIS.

7. The population projections used in the Facilities Plan and the EIS were developed by MOA and used consistently in the planning process. Table 1-1 on page 14 of the DEIS cites projections developed by the Institute for Social and Economic Research, adopted for use by the MOA for development of the Comprehensive Plan. Any projections are subject to revision. Such a revision would indicate an expected change in growth rate, which would be translated into a change in the rate of increase in sewage flows.

8. King salmon may occur in Rabbit Creek in relatively small numbers.

9. If sewage were to be accidentally discharged in large quantities to Potter Marsh, effects could result from the increased BOD load, toxicants in the wastewater, and elevated nutrient levels. High BOD resulting from accidental discharge of large quantities of sewage could substantially depress the DO level in the marsh to the point of jeopardizing aquatic species. Since most of the wastewater expected to be generated in the area near Potter Marsh is domestic waste, no quantities of toxic or hazardous substances are expected to be present.

   Potter Marsh is separated from Turnagain Arm by tidal gates on Rabbit Creek as it passes under the Alaska Railroad. Tidal flushing is restricted, and it would appear that the residence time of any spill and the subsequent flushing rate would be dependent on the flow of Rabbit Creek.

Tertiary treatment of sewage has been frequently mentioned as a beneficial value of wetlands because it is assumed that marsh plants would take up nutrients from the wastewater stream. Gosselink et al. (1973) went so far as to calculate an economic value for wetlands based on tertiary treatment capability per acre. A rigorous review of extant salt marsh literature (Nixon 1980) has challenged the notion that salt marshes are capable of "treating" wastewater. It would appear that the necessary data to support early claims for this beneficial use did not exist. Furthermore, efforts to experimentally determine whether wetlands can treat sewage have been equivocal in their results. It would appear that the ability to take up nutrients varies widely from place to place and perhaps seasonally as well (Nixon 1980). A preliminary study conducted by Schwartz (1982) on a northern freshwater marsh indicates that excessive nutrients and a large carbon source result in high phytoplankton productivity and bacterial growth. These, coupled with high particulate matter, inhibit submergent vegetation growth and invertebrate fauna diversity, thereby increasing downstream transport of nutrients. An experimental nutrient enrichment study on an Alaskan bog (Sanville 1981) suggested that nutrients would be absorbed by sphagnum bogs. However, the experiment examined only plant productivity and occurred in a wetland habitat which is different from Potter Marsh and known to be typically nutrient-deficient.

10. The purpose of the EIS is to evaluate sewerage projects, rather than water supply projects. No water supply projects are proposed as part of the Facilities Plan. The DEIS does recognize that development of the Hillside area with on-site sewers may lead to well contamination, and that a possible mitigation measure is to provide a public water supply system to the Hillside. The third paragraph on page 151 of the DEIS discusses this possible mitigation measure briefly.

    Implementation of such a system would require a series of booster pumps, reservoirs, and pipelines. Construction could be noisy and disruptive; erosion may occur in construction areas, adversely affecting water quality; reservoirs may cause adverse visual impacts; pump stations could produce intermittent low-level noise; and a water system could induce additional growth pressure on the Hillside Area. Analysis of these impacts is beyond the scope of the EIS, since EPA has no plans to require a water system as a mitigation measure, nor would such a project qualify for Clean Water Act grant funding.

11. The DEIS assumes that the area south of Little Rabbit Creek cannot develop at the densities indicated in the Comprehensive Plan until public sewer service is provided. The southeast interceptor extension is recommended in

the Facilities Plan as the preferred method for providing the sewerage. The intent of the statement on Page 156 is to illustrate the growth-inducing effect of this portion of the proposed sewerage facilities.

12. HALO suggests that Table 7-1 is unrealistic, due to natural constraints on development in the Hillside area. Table 7-1 is drawn directly from the Hillside Wastewater Management Technical Report... (MOA 1982), Table 4-2 on page 34. The text accompanying the table recognizes that environmental constraints limit development, but that "where natural environmental features are unconducive to development, specific measures can be taken to provide adequate housing. But, it inevitably requires a higher cost."

The Hillside Wastewater Management Plan does not designate areas undevelopable for reasons cited by HALO. Construction techniques are available to allow construction on difficult sites, including areas of high groundwater (elevating structures, providing drains), slope instability (retaining walls, pilings), and wind loading (designed to resist predicted wind forces).

The figures for Hillside area population are explained (ibid., page 39) as representing "...an unspecified future saturation development condition where all developable land has been utilized in some manner."

No estimate is given, either in the Hillside Plan documents or the DEIS, as to when this saturation development would occur. EPA does not believe that republication of the estimates developed in local planning activities is misleading.

13. Seismic activity can have devastating effects on natural and human-made features, as was amply demonstrated by the 1964 earthquake. Sewer lines are susceptible to joint separation, severance of lines, both vertically and horizontally, and stations can be heavily damaged. As described on page 143 of the EIS, the sewer system could be disabled for an extended period. A further discussion of these impacts is presented in previous response number 9.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

BILL SHEFFIELD, GOVERNOR

March 11, 1983

Environmental Evaluation Branch
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, M/S 443
Seattle, Washington 98101

Attention: Mr. Clark Smith

Gentlemen:

Re: Agency Review - Draft Environmental Impact Statement (DEIS) Proposed City of Anchorage Wastewater Treatment Plant Expansion and Interceptor Facilities.

The Alaska Department of Fish and Game (ADF&G) has reviewed the Draft Environmental Impact Statement referenced above. The ADF&G finds this document a clear and concise description of the environmental conditions occurring within the project area. The analysis of the recommended plan adequately addresses the potential impacts resulting from project implementation. As described, the project is considered consistent with the Standards of the Alaska Coastal Management Plan.

1 A major concern of this Department centers on the proposed location and design of a pump station to be located near Rabbit Creek at one of two possible locations: a) between Old and New Seward Highways, north of Potter Marsh, or b) adjacent to the Old Seward Highway north of Rabbit Creek. The ADF&G recommends the final design and siting of this pump station provide adequate protection for the Potter Point State Game Refuge. Feasibility and design of bypass and containment facilities should be an integral part of the planning and design phase of the Rabbit Creek area collection system. These facilities should be designed and located to avoid Potter Point State Game Refuge and to avoid disposal of

wastewater into Rabbit Creek. Please contact Mr. Gary Liepitz, Habitat Division, Anchorage at 267-2281 if you have any questions concerning this project.

Sincerely,

Don W. Collinsworth, Commissioner

David O. McKay

BY: Philip J. Brna
Habitat Biologist
Habitat Division
(907) 267-2284

cc: D. Harkness, ADF&G
B. Martin, DEC
B. Lawrence, EPA
B. Bowker, USFWS
P. Wohl, MOA
W. Wolf, DPDP

Response to Comments by Alaska Department of Fish and Game

1. Comments acknowledged. EPA will require the engineering evaluation of bypass and/or containment facilities in the Rabbit Creek area as a part of any Clean Water Grant for the Rabbit Creek facilities. Also, see responses to comments by HALO, Inc.

P. O. Box 110204
Anchorage, AK 99511
March 3, 1983

Mr. Clark Smith, Project Officer
U.S. Environmental Protection Agency
Region 10
1200 Sixth Ave., MS 443
Seattle, WA 98101

MAR 7 1983

Dear Mr. Smith:

The following comments are in reference to the DEIS, City of Anchorage, Alaska, Waste Water Facilities, with particular emphasis on the Hillside area.

1 I believe it should be stressed that it will be possible to accommodate a considerable increase in population in the Hillside area under the scheme proposed by the Wastewater Management Plan without extending sewers beyond the areas recommended for public sewers. The enforcement of complete site testing (to include identification of the water table positions at the three septic system sites per lot), thorough inspection of installations, and aggressive maintenance of system should be sufficient to ensure safe continuation of the various lifestyles in the area. Until the MOA actively insists that pumpers have proper tank-cleaning (not just emptying) equipment, encourages/approves use of the mound and shallow trench systems, and knows conditions in undeveloped areas well enought to require safe lot configuration even at the expense of replatting to larger lots, then we risk continuing the present less-than-optimum conditions.

2 The USGS "Hillside" report does not recommend surface water as a source for drinking water. Hydrographs will show that flow is probably inadequate, especially in winter, for any concerted development, quite aside from the water quality problems. The impact on Potter Marsh will certainly be adverse if the creeks are tapped.

3 With increased runoff that normally follows development, it will be essential to identify flood-plain dimensions and see that creekside land is in a condition to withstand floods. The MOA has never addressed the cause and effects of the periodic late spring flooding on Rabbit Creek--a problem that may well be compounded by increased suburban runoff. The MOA is, however, working on a plan to retain much of Rabbit Creek's course in its natural state.

4 The limiting factor on Hillside population growth is bound to be water availability. There is not sifficient data to predict the location of suitable aquifers in the glacial sediments--nor is there likely to be. If the water budget is upset by bringing community water to the area and recharging it through septic systems or by draining the area by sewers, the consequences will be dire indeed. Therefore, I do not think it can

4 | be stressed too much that planning for sewers anywhere in the Hillside has to be done in concert with planning for water supplies. Recommendations in the DEIS need to deal with this perhaps more explicitly.

5 | The sewer line route near Potter Marsh might cause fewest problems if it were routed as in alternative 3 (p. 67) with plan D. Potter Marsh has too great a value to the city to be compromised by the chance of leaks or breaks in sewer lines. The backup pump and storage alluded to would be valuable.

6 | Sewer sizing should not encourage additions from the Hillside, as the addition is almost certain to be random, a reaction. I think it is possible to rehabilitate failed systems by re-location or other means, even if the homeowner is inconvenienced for some time. (The spectre of this failure ought to prompt good maintenance; it should also spur the MOA into insisting on adequate tank-cleaning equipment.,

7 | Finall, one of the secondary impacts of Hillside growth will be the need for additional paramedics. This item ought to be added to the list in the DEIS.

Sincerely,

Katherine M. Reed

Response to Comments by Kathryn Reed

1. This comment is generally consistent with the findings of the EIS. EPA also believes that monitoring of groundwater and surface water is essential to detecting increases in nitrate levels and other contaminants and is also essential to protecting public health.

2. The USGS (1975) concludes that: "Surface-water reservoirs or diversions from the streams crossing the area do not appear to be practical sources of water." However, during the EIS process it was brought out that developers were proposing to provide a water supply from streams in the Hillside area. Since the availability of sewers to the south Hillside is viewed as a growth-inducing factor, and the impact of depleting the surface-water supply to Potter Marsh thereby became an EIS issue, the DEIS addresses this issue.

3. Comment acknowledged.

4. The suggestion that water and sewer facilities must be evaluated in concert to avoid disruption of local groundwater hydrology is sound. However, as discussed in prior responses, the purpose of the DEIS is to evaluate the impact of sewerage decisions, rather than water supply decisions. The EPA hopes that the MOA will include both water and sewerage considerations in future planning for the Hillside. This is particularly important if future groundwater pollution prompts the introduction of a community water system as a mitigation measure. The addition of an unconstrained water supply concurrent with cessation of current groundwater pumping may lead to substantial increases in local and seasonal groundwater levels, with adverse effects on the ability of septic systems to provide adequate treatment. This in turn could threaten public health due to surfacing of inadequately treated effluent.

5. Comment acknowledged.

6. Comment acknowledged.

7. Comment acknowledged. Paramedic services, ambulance service, hospital facilities, and other types of health care services will all be affected by growth.

R. BROCK SHAMBERG, P.C.
ATTORNEYS AT LAW
POST OFFICE BOX 10-295
ANCHORAGE, ALASKA 99511
TELEPHONE (907) 345-3855

R BROCK SHAMBERG

March 4, 1983

Mr. Clark Smith
Environmental Evaluation Branch
Environmental Protection Agency, Region 10
1200 Sixth Avenue, M/S 443
Seattle, WA 98101

Re: EIS Anchorage Wastewater Facilities; Draft, November 1982

Dear Mr. Smith:

I have read with interest and concern the Environmental Impact Statement for the Anchorage wastewater facilities and appreciate this opportunity to respond to the draft.

1 Overall, I am struck by the tremendous amount of effort and work that has gone into the Environmental Impact Statement, but keep coming back to one central question. What about on-site disposal systems? Why does the report seem to play down this permanant solution?

I realize, of course, that the impact statement is a feasibility study, as opposed to recommendation for construction, but it is clear in the overall reading of the report that a major permanent solution for many of the hillside residents has been mainly ignored, obscured or played down. My feelings and reactions can be simply stated as follows:

2 1. The report is comprehensive, but fails to adquately deal with an on-site development program that would include proper construction, operation and maintenance of existing and future on-site septic systems.

3 2. Cost comparisons are not adequately stated with regard to alternatives of spreading the effective costs of sewer construction vs. on-site systems.

4 3. Anchorage is not a community that needs a massive, long-term construction project to boost its economic base, and if such a project were needed, the "Knik Crossing" would serve the needs of the community far better.

5 4. The report ignores the current problems with the current city sewer system and the upgrading of those lines and facilities that are of mounting proportion.

6 5. The report does not adquately consider nor provide for surface water conditions on the Hillside, despite its being a high priority at the EIS scoping meetings.

7 6. Although availability of water for Hillside residents is of equal concern, whether there is a sewer system or a septic system, the report does not deal with this problem in an adequate manner, nor in the long range. This is the priority issue, in my opinion, and wastewater a secondary and a far less limiting factor to our growth and quality of life.

8 Overall, the report lacks because of what is omitted; not in what is stated. Everyone realizes that sewers are a necessity and an inevitability in certain areas, but recommendations are strongly needed with regard to the proper construction, operation and maintenance of on-site sytems where possible. This the report simply does not bolster, support, nor deal with the advantages of the on-site alternative to the reader and our community.

Thank you again for the opportunity to make these comments.

Respectfully yours,

R. Brock Shamberg

RBS/jl
cc: John R. Spencer, Regional Administrator
Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, WA 98101

Jones & Stokes Associates, Inc.
2321 P Street
Sacramento, CA 95816

Response to Comments by R. Brock Shamberg, P. C., Attorneys at Law

1. The DEIS does not attempt to play down the use of on-site systems. Chapter 5 explores this issue in depth.

   The DEIS is intended as an evaluation of impacts of the proposed sewerage decisions, rather than as a feasibility study. The Facilities Plan documents serve as feasibility studies.

2. The DEIS discusses existing on-site system management on pages 137 and 138, and suggests additional mitigation measures on pages 150-152. A document on the operation of septic systems is referenced on Page 151 of the DEIS. That document deals extensively with the management of on-site systems, dealing with both technical and institutional issues.

3. The commentor states that adequate cost comparisons of the option of public sewers versus on-site sewers are lacking. This information was requested from the MOA by EPA but was never developed as part of the facilities planning process. A 20-year present-value analysis considering full life-cycle costs of both systems would be desirable. The lack of this information has not constrained other analyses in the DEIS, and will not prevent funding decisions by EPA on other parts of the Facilities Plan.

4. Comment acknowledged. Expansion of the sewerage system is proposed to meet the requirements of an expanding community and prevent pollution of the waters, not as a "make-work" project.

5. The Facilities Plan and DEIS include numerous (about 70) sewer improvement projects to correct current and projected deficiencies, and to upgrade the interceptor system. Nearly all of these facilities are described in the Facilities Plan in very general terms, such that detailed analysis in the DEIS was not possible. The DEIS includes those facilities in a general way only, addressing the cumulative impacts of the overall plan, with detailed NEPA evaluations confined to the plant expansion, outfall, West Bypass Interceptor, and Southeast Interceptor projects only.

6. The DEIS discusses surface-water hydrology and quality in the Hillside Area on pages 139, and 142-152.

7. As discussed in prior responses to comments, the DEIS evaluates sewerage decisions proposed pursuant to the Clean Water Act. Water supply issues are discussed only as they interact with sewerage decisions. See also the responses to comments by HALO and Kathryn Reed.

8. The DEIS has identified possible deficiencies in current on-site system construction, operation, and maintenance, with the objective of providing information to the agencies and public that may allow reduction of potential public health threats. It is the purpose of the report to evaluate, rather than bolster, the alternatives in the Facilities Plan.

RABBIT CREEK COMMUNITY COUNCIL
SRA BOX 261-M
ANCHORAGE, ALASKA 99507

March 6, 1983

Mr. Clark Smith
Environmental Evaluation Branch
Environmental Protection Agency, Region 10
1200 Sixth Avenue, M/S 443
Seattle, WA 98101

Re: EIS Anchorage Wastewater Facilities;
Draft, November 1982

Dear Mr. Smith:

The EIS Anchorage Wastewater Facilities Draft has been reviewed with great interest by the officers, directors and various members of the Rabbit Creek Community Council. Many of the areas discussed in this draft are located within the boundaries of our council.

The following subjects, in our opinion, require further consideration and study:

1 | 1) The EIS does recognize the possible mix of septic systems and sewers. Mitigating measures to an adopted plan are not in question, but we urge that the EIS stress the positive benefits of continuing septic systems. The key to their success will be vigorous, enforced maintenance of the systems. This natural solution to wastewater treatment is, we believe, untimately safer and less costly than sewers.

2 | Given the continuance of large lots (one acre plus), the cost of sewering the entire Hillside area is simply too great to be borne by the homeowner. Alternatively, while sewers and high density development throughout the Hillside area would reduce the cost of sewers per homeowner lot, the entire population of Anchorage would then be asked to share in the cost of construction and maintenance of the system, an economic burden which we feel would prove equally unacceptable. Further, it would destroy the rural lifestyles in the Hillside area whose continuance the Hillside Wastewater Management Plan was directed to emphasize.

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ENVIRONMENTAL EVALUATION BRANCH

3 2) Growth in the Anchorage area will be limited by availability of water and effects of surface drainage before it will be limited by the availability of sewers.

a) The draft EIS devotes little space to water availability. We would like to see mitigating measures dealt with more specifically. What sources of surface water must be considered? What is the long-range outlook for public groundwater supplies?

4 b) Surface drainage is recognized in the EIS as a problem. There is little information about drainage in this geologically young area, and drainage is continually disrupted by road and home construction. The EIS should stress that an in-depth sutdy of the impacts of development needs to be made--that it is desirable to map flood plains and plan for flood control. It will be essential to identify gaining and losing reaches of streams so that septic wastes can be directed safely. None of this can be done without extensive detailed work. The EIS might specify approaches to these problems.

We look forward to the final Environmental Impact Statement that incorporates the input made by this council and others.

Sincerely,

Lloyd V. Morris
Vice President
Rabbit Creek Community Council

LVM/jlt

cc: John R. Spencer, Regional Administrator
Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, WA 98101

Jones & Stokes Associates, Inc.
2321 P Street
Sacramento, CA 95816

Senator Ted Stevens, U. S. Senate
Senator Frank Murkowski, U. S. Senate
Representative Don Young, U. S. House of Representatives

Responses to Comments by Rabbit Creek Community Council

1. The objective of an EIS is to evaluate the implications of an action, not to stress benefits that may be offset by potential adverse effects on public health. The purpose of any sewerage system is to dispose of liquid waste in an environmentally-acceptable manner without risk to human health. The analyses in the DEIS seriously question whether the on-site system alternative, as adopted in the Hillside Wastewater Management Plan, is capable of achieving this purpose. EPA agrees that the success of this alternative depends, at least in part, on vigorously enforced maintenance of systems.

2. Full life cycle cost data for sewers and on-site systems have never been provided to EPA to demonstrate cost-effectiveness of either system.

3. The Facilities Plan and EIS assume that water availability will not be a constraint to growth in the 20-year period analyzed by the EIS. The MOA is drilling additional wells to meet short-term demand and is pursuing implementation of water importation from the Eklutna project for a long-term solution. Groundwater will most likely continue to be used, subject to the management of the local groundwater basin to prevent salt intrusion from Cook Inlet.

4. The MOA has established a requirement for specific drainage plans (DEIS, page 146, 4th paragraph). Areawide drainage planning and floodplain delineation are suggested in the EIS as additional mitigations. The approach to areawide drainage planning should be consistent with other area plans underway or completed in the Anchorage Bowl. These plans have been developed by contractors to the MOA, and data on the scope of services are available from the Planning Department.

   Floodplain delineations are normally prepared consistent with Corps of Engineers or Federal Emergency Management Agency criteria.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503
(907) 276-3800

IN REPLY REFER TO

WAES

21 MAR 1983

Mr. Clark Smith
Environmental Evaluation Branch
Environmental Protection Agency - Region 10
1200 6th Avenue (M/S 443)
Seattle, WA 98101

Re: Draft EIS City of Anchorage, Alaska
Waste Water Facilities - Nov. 1982

Dear Mr. Smith:

The U.S. Fish and Wildlife Service (USFWS) has reviewed the document and offers the following comments:

1 | 1. The document would greatly benefit from more in depth discussion of what is already known about the unconfined and shallow aquifers of the Anchorage Bowl and their relationships to surficial and shallow subsurface (upper 100-200 ft) soils and sedimentary strata.

Wetlands, bogs and streams will be variously traversed by pipes, and an evaluation of the potential problems that will require pre-construction design considerations to protect and maintain the integrity of surface and subsurface aquifer should be discussed in detail in the EIS.

2 | For example, the alternative of tunneling for emplacement of a 78 inch gravity line could present significant construction and post-construction problems if the integrity of the geological formation "sealing" the shallow aquifers or the stream channels of creek crossings is and remains breached, causing water to seep and flow along a least resistance path along the tunnel bore. In addition, we are quite concerned over the possibility of subsidence following tunnel construction. This concern is particularly acute in the area around Campbell and Little Campbell Creeks. We believe a more thorough discussion of this problem is warranted.

Small cave-in's have already occurred in the Anchorage area as a result of breaks and have resulted in uncontrolled flow along buried pipes. Breaking the seal of perched aquifers during trenching can also induce changes in wetland environment, including those designated for preservation.

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3 2. The long term potential environmental impact of "dewatering" of the Rabbit Creek - Potter Creek Hillside area upon the water requirements of Potter Refuge/Potter Marsh, through a combination of ground-surface water withdrawal and transportation of the withdrawn water as "sewerage" for treatment and discharge outside the hillside drainage area, should be discussed. Potter Marsh, located in the southeastern corner of the Potter Point Game Refuge, established in 1970 by the State legislature, supports diverse fish and wildlife resources of high public interest throughout the year and requires high amounts of surface and groundwater inflow to maintain the ecological quality of the marsh - wetland environment. The long term effects of sewering the hillside area contiguous to Potter Marsh should be discussed in terms of the overall long term water supply benefits for the hillside area.

4 3. Much encroachment by transportation systems crossing the marsh have significantly reduced and degraded the remaining land-water quality, essential to the well being of the botanical, resident and migratory biota of the marsh. We would regard, but not necessarily endorse until detailed plans can be reviewed and approved, alternative 1 and alternative 3 (Fig. 3-9, p. 67) as preferred options for sewering the area. Alternative 1 should not, however, include emplacement of the sewer line within the refuge boundary, defined as extending seaward from the "toe of the bluff." Alternative 3, by placing the inner sewer line landward of the "toe of the bluff" and seaward of the outer right-of-way of the railroad should have minimal impacts upon the Potter Marsh habitat.

5 Be advised that on March 19, 1980, a meeting was held in Anchorage and chaired by the Audubon Society to discuss Potter Marsh. The meeting was well attended and many pertinent factors influencing Potter Marsh were discussed. It was agreed that within two weeks the Audubon Society would provide a summary of the meeting. Furthermore, Mayor Tony Knowles of Anchorage agreed to convene within thirty days, a task force co-chaired by the Municipality and the Alaska Department of Fish and Game to examine Potter Marsh and associated development in a holistic manner. Specifically, the task force will examine 1) Potter Marsh as an entity; 2) the watershed of Potter Marsh; and 3) other areas whose development would have an effect on the Potter Marsh watershed. While it is uncertain what the results of this mayoral task force will be, we are convinced that those concerned with Potter Marsh are somewhat disturbed by the piecemeal approach of existing and proposed development. For this reason we urge you to consider carefully and utilize the task force prior to making final decisions on pipe alignment, as it relates to the Potter Marsh area.

We sincerely appreciate the opportunity to comment on this document.

Sincerely,

Acting LeRoy W Towl
Regional Director

Responses to Comments by U. S. Fish and Wildlife Service

1. An in-depth evaluation of the aquifers in the Anchorage Bowl is beyond the scope of this EIS. Much information on these aquifers is contained in the numerous publications of the USGS.

   The question of hydrologic impacts of sewer construction is addressed in some depth in Chapter 4 of the DEIS. The discussions contained in that section should provide sufficient guidance to design engineers in considering potential impacts and designing appropriate mitigations to protect the integrity of the aquifers. The 70 proposed sewer construction projects could affect the shallow aquifer, as discussed in the DEIS; no impact on the artesian aquifer is expected.

2. The tunneling proposed for the 78-inch interceptor is expected to occur within a clay lens, reported as over 100 feet in thickness. Preliminary soil borings indicate that this is a largely water-tight formation. No measurable hydrologic impacts are expected if tunneling is confined to the clay layer. Lateral movement of groundwater along the tunnel bore and subsidence above the tunnel are not likely. The pipe will be placed in the tunnel and the space between the pipe wall and the tunnel bore will be sealed, inhibiting settlement and movement of water.

   The potential for such impacts will be further addressed in a separate Environmental Information Document being prepared by the MOA in support of a Finding of No Significant Impact (FONSI) covering the West Bypass Interceptor.

3. These impacts are addressed on pages 142 and 143 of the DEIS.

4. Comment acknowledged.

5. Comment acknowledged.

Chapter 3

CHANGES AND CORRECTIONS TO DEIS

This chapter presents changes and corrections to the DEIS as a result of public review, comments, and reviews by the preparers. Portions of relevant pages of the DEIS are reproduced, with changes typed in *italics* in context on the page.

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Revisions to Page viii

A primary characteristic of a wetland is, obviously, the presence of water. The presence, characteristics, and movement of this water are termed hydrology. Hydrologic values of wetlands include retention of rainfall and snowmelt runoff, augmentation of stream base flow, water quality benefits, and groundwater recharge. Loss of wetlands could result in elevated flood and erosion risks, and alteration of stream flow and water quality.

Planned growth, supported in part by sewerage expansion, together with the construction of facilities within and adjacent to the wetlands, may result in the loss of more than half of all nontidal wetlands in the Anchorage Bowl.

Construction of sewers within wetlands as proposed in the facilities plan (about 26 sewer facilities in many of the area wetlands) will result in destruction of vegetation and loss of wildlife habitat along pipe alignments. Heavy equipment crushes or removes vegetation and compacts peat deposits. Areas of bog wetlands stripped of vegetation generally do not revert to the original habitat type, but instead are overgrown by ruderal vegetation or are kept barren by foot or off-road vehicle traffic. Long-term alteration of habitat is apparent in aerial photographs taken long after emplacement of pipe. In Campbell-Klatt Bog, for example, one sewer line is proposed to pass through an area used by Canada geese and other waterfowl as a nesting area.

Much more subtle, but perhaps more significant, is the delayed impact on hydrologic features of wetlands. Most peat bogs, such as those comprising the majority of wetlands in the study area, are natural water-retaining basins. In some ways, their character is analogous to a teacup filled with water and cotton. If a buried pipe were placed through a wetland, and if backfill material were used which did not impede water movement, the action would be approximately analogous to chipping the rim of the cup, allowing some of the water to drain away. To continue the analogy, water level in the cup (bog) will probably sink below the level of the damaged area because the cotton (peat) will act as a wick bringing moisture to the outlet area. This dewatering process will adversely change the biological and hydrologic values of wetlands.

Revisions to Page 34

The combined facilities plan describes an areawide sewerage facilities expansion program serving the Anchorage Bowl and extending over a 20-year period. It encompasses:

- o Alternatives for expansion of Point Woronzof WWTP;
- o Extension of the existing outfall by 1,500 feet;
- o Study of adding a diffuser at the end of the extended outfall;
- o Alternatives for disposal of sludge solids from the treatment process;
- o Alternatives for construction of the West Bypass interceptor sewer;
- o Construction of the Southeast interceptor sewer, including sewerage alternatives in the Rabbit Creek-Potter Creek area;
- o Provisions for on-site sewerage of a portion of the Hillside area;
- o Construction of about 70 sewer improvement projects through 1998.

The facilities plan sets forth a MOA-recommended plan, suggesting implementation of specific alternatives.

For EIS purposes the above project alternatives, except for the 70 sewer improvement projects, are evaluated in detail in the EIS. The 70 sewer improvement projects are addressed only with specific reference to wetland impacts and in general terms relative to cumulative impacts. They are not covered pursuant to NEPA requirements by this EIS and will not be candidates for federal funding without future NEPA review. The Recommended Plan, which consists of the first seven projects listed above, is presented and analyzed in greater depth, with alternatives analyzed in sufficient detail to provide a full perspective of the consequences of alternative actions.

Revisions to Page 36

Recommended Plan

The Wastewater Facilities Plan for Anchorage, Alaska (MOA June 1982) and the Hillside Wastewater Management Plan (MOA May 1982) together set forth an area-wide Recommended Plan for wastewater collection, treatment and disposal in the Anchorage Bowl. The Hillside plan, which designates areas for sewerage, on-site sewage disposal systems, and no sewerage service (generally unsuitable for on-site systems), was adopted by the Municipal Assembly on May 18, 1982. This is considered a Recommended Plan in the context of EIS analyses. The Wastewater Facilities Plan for Anchorage, Alaska acknowledged the adopted Hillside plan and includes sewerage service to the areas so designated in that plan. The wastewater facilities plan also evaluates alternatives in the remainder of the Anchorage Bowl and presents a Recommended Plan selected from those alternatives.

The Recommended Plan for providing wastewater collection, treatment and disposal is described in this section. The expansion of the Point Woronzof treatment plant is described first, followed by the outfall and diffuser, major interceptor sewers, and Hillside sewerage plans. The remaining 70 sewer improvement projects, which are not described in detail and are not covered in detail in the facilities plan or this EIS, are mentioned last. These projects are listed for information only, to provide the full context of the Facilities Plan.

The Point Woronzof WWTP would be expanded from its current effective capacity of 22 MGD annually to 58 MGD (average annual flow). (Current design capacity is 34 MGD, although the plant cannot meet discharge requirements at a design flow rate over 22 MGD.) This expansion would be achieved through construction of three additional primary clarifiers, modification of other portions of the liquid processing to increase capacity (Figure 3-1), addition of another sludge incinerator to the solids process (Figure 3-2), and consideration of alternative disposal methods for incinerator ash. These improvements are described below in the order of the treatment process.

Cost Summary

Federal regulations require that a comprehensive cost analysis of all wastewater treatment plans be undertaken. The most cost-effective plan is defined as the lowest present-

worth alternative that meets water quality standards in the absence of overriding non-monetary costs. Present-worth evaluation is the method most commonly applied to evaluate the cost of alternative facilities. Present-worth evaluations include:

- o Probable construction costs: engineering, legal and administrative fees, contingencies and interest.
- o Operation and maintenance: labor, materials, supplies, spare parts, chemicals and power, usually on an annual basis.
- o Remaining value of improvements: Value of facilities at the end of the planning period.

Table 3-3 shows the criteria used to determine the costs of the above present-worth components. Tables 3-4 through 3-10 show present-worth alternatives described in this chapter.

Present-worth costs for the outfall extension and diffuser are not included in the tables. A 1,500-foot outfall extension is estimated to cost $5,660,000, and a 1,000-foot diffuser is estimated to cost $3,770,000 (MOA 1982).

A summary table of present worth costs (Table 3-12) is attached showing comparable cost data for the Recommended Plan facilities, to the extent comparable data are available.

User Costs

Costs to individual MOA sewer customers would increase as a result of expansion of the wastewater facilities (Table 3-11). Those customers served by sewers would sustain a rate increase estimated at from 22 percent to 34 percent in 1985, and 30 percent to 40 percent in 1999 as a result of the Recommended Plan, depending on funding sources for construction.

The low range in these estimates assumes that U. S. EPA would provide 75 percent construction funding for the Point Woronzof WWTP improvements, and the State would provide an additional 12.5 percent; that the State would fund 50 percent of all other expansion; and that local funds would comprise the balance. The high range assumes no U. S. EPA funding, but rather that all construction cost funding would be 50 percent State and 50 percent local. In both cases, all repair and rehabilitation work, as well as maintenance and operating costs, would be paid with 100 percent local funds.

Table 3-12. Summary of Present Worth Costs - Recommended Plan

Item	Present Worth
Point Woronzof Wastewater Treatment Plant expansion	$5,431,000
Incinerator ash disposal alternatives:	
- landfill	1,198,900
- outfall	574,900
- lagoon	983,700
Outfall, diffuser	(1)
West Bypass Interceptor sewer	(2)
Southeast Interceptor	(3)
Rabbit Creek Interceptor, pump station	3,975,000

(1) Not available.

(2) Being revised by MOA; original estimates ranged from $8,953,000 for pump station and force main to $13,609,000 for open trench construction.

(3) Not provided in facilities plan.

SOURCE:. Anchorage Wastewater Facilities Plan June 1982.

Revisions to Page 153

Chapter 6

CULTURAL RESOURCE IMPACTS

Archeological Resources

The Anchorage Bowl area is not noted for extensive use by prehistoric populations. A known archeological site occurs at Point Woronzof one-half mile south of the WWTP (49-TYO-030). The Tanaina were known to have fish camps at the mouth of Ship Creek during early historic times. A more detailed description *of archeological resources is available to qualified persons by request from EPA Region 10, at the address on the cover of this EIS.*

Impacts to known or newly-discovered archeological sites can be minimized through avoidance where possible. The facilities plan does not threaten the site in the Point Woronzof area. A preconstruction survey of the expansion area at the WWTP should be conducted as a precautionary measure. Since watercourses are often places of high habitation probability, a brief reconnaissance at all stream crossings is recommended. During all construction activity, a localized work halt should occur and the State Historic Preservation Officer should be immediately notified if an archeological site is uncovered.

Historic Places

Although Anchorage is a comparatively young city, having been established in 1915, it has a number of places of historic value, including seven sites listed in the National Register of Historic Places:

- the Oscar Anderson House on 4th Avenue
- the Old Federal Building and U.S. Courthouse at 601 W. 4th Avenue
- the Campus Center on Wesley Drive
- the Eklutna Power Plant northeast of Anchorage
- the Old St. Nicholas Russian Orthodox Church on Eklutna Village Road
- the old Anchorage City Hall at 524 W. 4th Avenue
- the Pioneer School House at 3rd Avenue and Eagle St.

None of these sites is affected by the facilities plan.

Explanation of Figure 8-5, page 181

Figure 8-5 on page 181 (repeated as Figure B-8 on page B-25, Appendix B) bears a vertical axis designated by "W/V and P/V, g/d·m^3." The reader should be referred to pages B-13 and B-24 of Appendix B for a further explanation. W stands for waste biochemical oxygen demand (WBOD), P stands for phytoplankton dissolved oxygen deficit (PDOD), V is the volume of the receiving water. These factors are expressed as grams per day per cubic meter of the receiving water (g/d·m^3).

The chart illustrates that BOD loading and oxygen depletion due to the Point Woronzof outfall are not a problem in the Knik Arm.

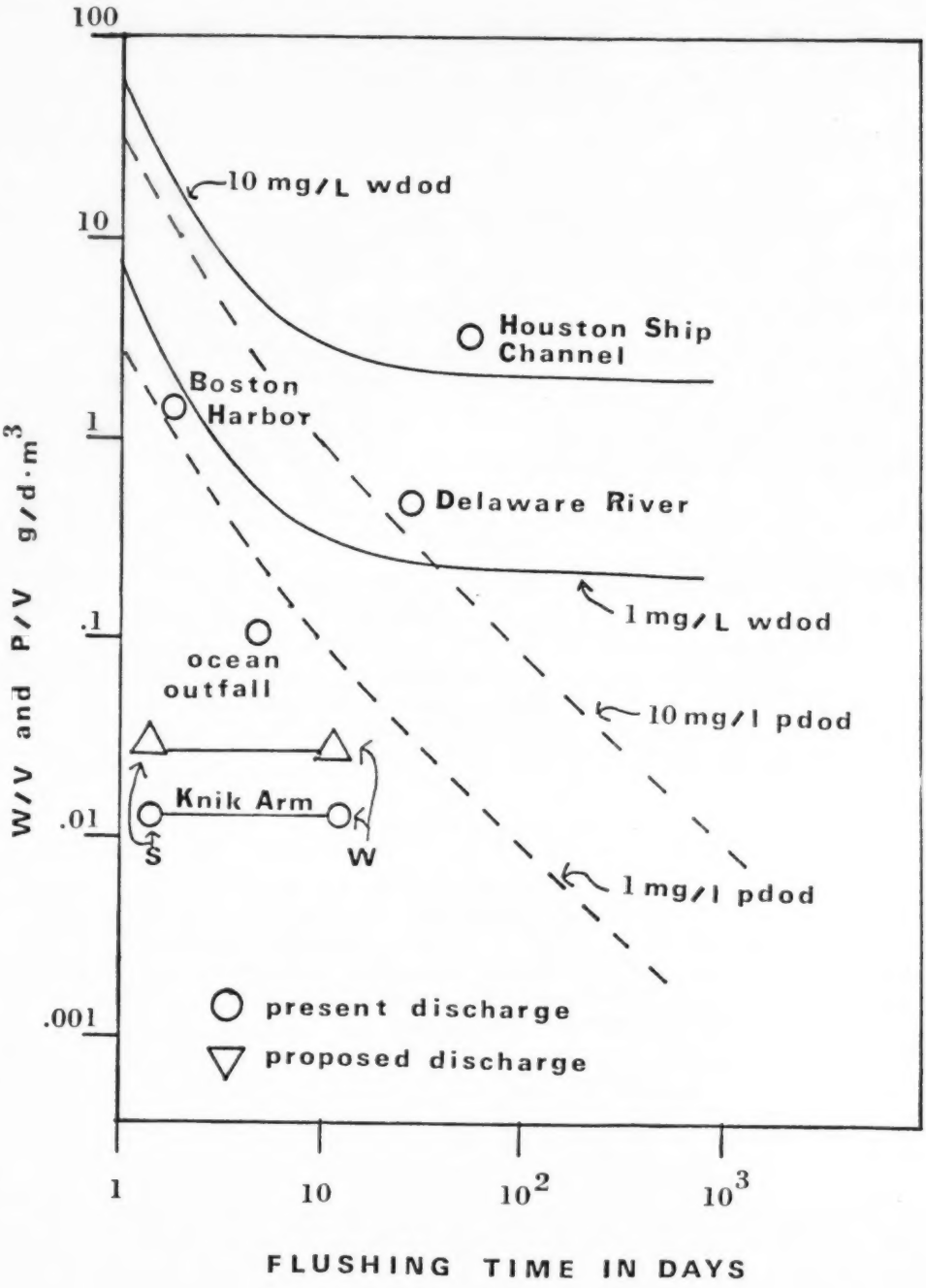

Figure 8-5. Estuarine Waste Assimilation Diagram.

Revisions to Page 213

EIS Wetlands Workshop - October 16, 1981

An EIS workshop emphasizing wetlands work was held in the new Federal Building in Anchorage on October 16, 1981. A major purpose was to identify a detailed scope of expanded biological studies to satisfy both EIS needs and MOA special study needs. Federal, state and local agency representatives attending the workshop received handouts outlining a tentative study scope and modifications were suggested by participants. (The expanded biological studies were not funded for this EIS.)

Facilities Plan Public Meeting - January 20, 1982

A 201 Facilities Plan public meeting was held on January 20, 1982 at West High School, attended by about 25 people. Wastewater project alternatives were presented and EIS issues discussed. Primary public attention was focused on Hillside and Potter Marsh impacts that might occur from sewering of the south Hillside.

EIS Wetlands and Hillside Workshop - April 14, 1982

A two-session EIS workshop was held in Anchorage on April 14, 1982 to discuss wetlands and Hillside area issues. The first session, attended by about 15 people, was held in the Hill Building. The second session, attended by about 10 people, was held at Wendler Junior High School. Issues discussed at the workshops included the outfall, Hillside issues and specific wetland impacts.

Comments Received Through Distribution of the Preliminary Draft EIS

The Preliminary Draft EIS was circulated for comments on August 30, 1982 to certain public agencies and groups that were active participants in EIS scoping. Comments were received at a meeting in the MOA Telephone Utility offices on September 15, 1982. Those comments have been considered in completing this Draft EIS.

Pages 39-47
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